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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------|-------------|----------------------|---------------------|------------------|
| 10/017,367 | 12/12/2001 | Kevin K. Lehmann | PRU-101US | 8107 |
| 23122 | 7590 | 08/17/2005 | EXAMINER | |
| RATNERPRESTIA | | | PHAM, HOA Q | |
| P O BOX 980 | | | ART UNIT | PAPER NUMBER |
| VALLEY FORGE, PA 19482-0980 | | | 2877 | |

DATE MAILED: 08/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

11-A

Office Action Summary

Application No.

10/017,367

Applicant(s)

LEHMANN ET AL.

Examiner

Hoa Q. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 6-18, 28-33, and 35-44, 48-49, 53-56 are rejected under 35 U.S.C. 102(e) as being anticipated by Lerber et al (US 2002/0092977A1).

Regarding claims 1, 6, 28, 36, 48-49, 53-56, Lerber (of record) discloses a closed passive fiber optic sensor for determining the physical and chemical parameter relating to a sample comprises a closed passive fiber optic ring (3) having a portion (12) thereof exposed to the sample gas or liquid, a coherent source (1) of radiation, a first and second coupling means (4,5), a receiver (7) coupled to the coupling means for receiving a portion of the radiation resonant in the passive fiber optic ring and a processor (9) coupled to the receiver for determining the level of the trace species in the gas sample or liquid sample based on the signal generated by the detector (see figures 1, 3, 6 and 8).

Regarding claims 2 and 18, see figure 2 or paragraph 62 for determining the level of the trace species based on a rate of decay of the signal generated by the detector.

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Regarding claims 7-8, 17, and 31, see figure 3 for the exposed portion (12) of the fiber (3).

Regarding claims 9-10, see abstract of the use of an optical parametric generator for trace species detection.

Regarding claims 11-12 and 29-30, see claim 30 of Lerber et al for the use of a pulsed light source.

Regarding claims 13-16, see paragraph [60] for the use of either pulsed or a continuous wave laser.

Regarding claims 32 and 35, see paragraphs [43] and [56] for coating fiber optical ring.

Regarding claims 37-38 and 41-44, see figure 1 for the driver (18).

Regarding claims 39 and 40, see claims 16-17 for the changing of refractive index.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-5, 19-27, 34, 45-47, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lerber et al.

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Regarding claims 3 and 52, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a single optical coupler instead of two couplers, thus reduce the cost of the device.

Regarding claims 4-5, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Lerber et al a filter placed in an optical path between the optical fiber and the detector to selectively pass the received portion of radiation from the passive fiber optic loop to the detector if a certain wavelength is selected.

Regarding claims 19 and 20, Lerber et al teaches the use of a passive resonant fiber loop (3). Thus it would have been obvious to one having ordinary skill in the art to use an optical fiber of fused silica, sapphire and fluoride based glass or from a hollow fiber because this is a known material that used for forming optical fiber.

Regarding claims 21 and 22, Lerber et al teaches the use of single mode or multi-mode fibers (see paragraph 76).

Regarding claims 23-27, It is known in the art that thickness of the surface of the optical sensor is directly depended to the sensitivity, therefore it would have been obvious to one having ordinary skill in the art to modify Lerber et al to provide a predetermined radius and diameter measurements for optical sensors for specific samples to be identified based on the sensitivity needed.

Regarding claims 33-34, since Lerber et al teaches that a portion of the optical fiber is coated with a material, it would have been obvious to one having ordinary skill in

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the art at the time the invention was made to use any kinds of material (i.e., polyethylene) because the device would function in the same manner.

Regarding claims 45-47, due to the length of the space to be tested, it would have been obvious to choose the length of the fiber optic ring up to 1km long.

5. Claims 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lerber et al in view of in view of Lehmann (5,528,040) (of record).

Regarding claims 50-51, Lehmann teaches the use of a second optical detector (PD 2), which generates a trigger signal to the processor responsive to receiving radiation from the coherent source. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include in Lerber et al a reference detector for the purpose of controlling the intensity of the light source. The rationale for this modification would have arisen from the fact that by keeping the light source at stable intensity would increase the accuracy of the measurement.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

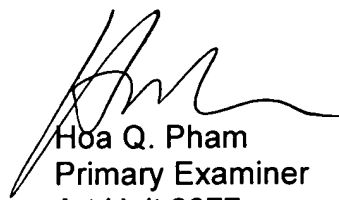
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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa Q. Pham whose telephone number is (571) 272-2426. The examiner can normally be reached on 7:30AM to 6 PM, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hoa Q. Pham
Primary Examiner
Art Unit 2877

HP

August 16, 2005